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Aleyrodidae (Homoptera) of Taiwan Part III. *Aleuromarginatus* CORBETT

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Abstract *Aleuromarginatus* CORBETT of Taiwan including one new species *A. shihmenensis* KO, n. sp. is presented with illustrations and accompanying photographs.

Key words: Aleyrodidae; *Aleuromarginatus*; Taiwan; taxonomy; new species.

Introduction

Aleuromarginatus is unusual among aleyrodid genera in being associated with one dicotyledonous plant family, the Leguminosae. It is an Old World genus, known from the Ethiopian, Oriental and Austro-Oriental Regions (MARTIN, 1988). The name of the genus, *Aleuromarginatus*, refers probably to the double rows of marginal teeth of the pupal cases. Actually, one of the rows is a row of papillae producing the marginal fringe as in the species of the genera *Trialeurodes* and *Dialeurolonga* (BINK-MOENEN, 1983). A detailed study of an aleyrodid species occurring in Taiwan has revealed that it is assignable to the genus *Aleuromarginatus*. Presently, there are 10 described species of *Aleuromarginatus* recorded in the world (BINK-MOENEN, 1983; DAVID, 1976, 1988; JESUDASAN & DAVID, 1991; MARTIN, 1985; MOUND & HALSEY, 1978).

Depositories

BMNH British Museum (Nat. Hist.) (U.K., London)
HBL Hikosan Biological Laboratory (Japan, Fukuoka)
NTU National Taiwan University (R.O.C., Taipei)
TARI Taiwan Agricultural Research Institute (R.O.C., Taichung)
NSMT National Science Museum (Nat. Hist.) (Japan, Tokyo)

Genus *Aleuromarginatus* CORBETT

Aleuromarginatus CORBETT, 1935: 246–247. Type species: *Aleuromarginatus tephrosiae*, by monotypy.

Pupal case elongate to broadly oval. Moulting sutures nearly reaching

margin. Pupal case either colorless or yellowish, with or without darker patches, surrounded by a waxy palisade and fringe of wax-hairs. Real margin crenate, apparent margin a row of papillae producing wax-hairs. Anterior setae absent, posterior setae present. Tracheal pore areas not differentiated. Dorsal surface with a subdorsal and a submedian row of short setae, in all 21 pairs, cephalic, 1st and 8th abdominal setae included. Vasiform orifice subcordate, inner margins toothed. Operculum roundly trapezoidal, filling about a half of vasiform orifice, lingular tip exposed. Caudal furrow and ridges faint. Ventral surface of antennae lateral to legs. Prothoracic legs reduced. Outside of legs nearly straight, distal segment small, occasionally not visible. All spiracles present, subequal in size.

Aleuromarginatus shihmenensis KO, n. sp.

(Figs. 1–6)

Pupal case. Light brownish yellow in color with a marginal fringe of wax. Outline asymmetrically elongate-oval, often rather narrowed cephalad and usually widest at abdominal segments I–IV, with margin slightly indented anteriorly and posteriorly. Submarginal area not separated from dorsal disc. Most individuals asymmetrical, many of them being more convex on one side than on the other, so that their precise outline is rather variable. Sexually dimorphic: ♀ 1.44–1.68 mm long, 0.45–0.52 mm wide; ♂ 1.04–1.28 mm long, 0.38–0.4 mm wide. Pupal cases of both sexes 2.7–3.2 times as long as wide, 3 times on an average. Margin (Fig. 4) with regular double rows of teeth, real margin in form of shallow crenulations, apparent margin like papillae, rather coarse and conspicuous, elongate with 33–35 teeth occupying 0.1 mm of abdominal margin. Margin not modified at thoracic and caudal tracheal areas. A pair of fine marginal setae present posteriorly, but the anterior pair is apparently always absent.

Dorsum. Cuticle brownish; in most specimens submedian area with darker pigment from the cephalothoracic suture and up to the abdominal segment VII. Abdominal submedian area well defined. Dorsum sculptured by a dense but irregular pattern of polygonal markings which are darker near subdorsum area. Dorsum bearing 21 pairs of minute setae which are up to $0.87\ \mu\text{m}$ long, their distribution as shown in Fig. 6; subdorsum with 12 pairs in a row; prothorax, mesothorax and metathorax each with 1 pair; abdominal segments I, III, IV, V, VII and VIII each with 1 pair. Caudal pair on abdominal segment VIII situated submarginally. Longitudinal and transverse moulting suture both reaching margin, cephalothoracic suture faint, not reaching margin. Submedian with a peculiar pair of submedian longitudinal furrows. Promesothoracic suture also furrow-like and striking, not reaching margin. A pair of oval eye-spots

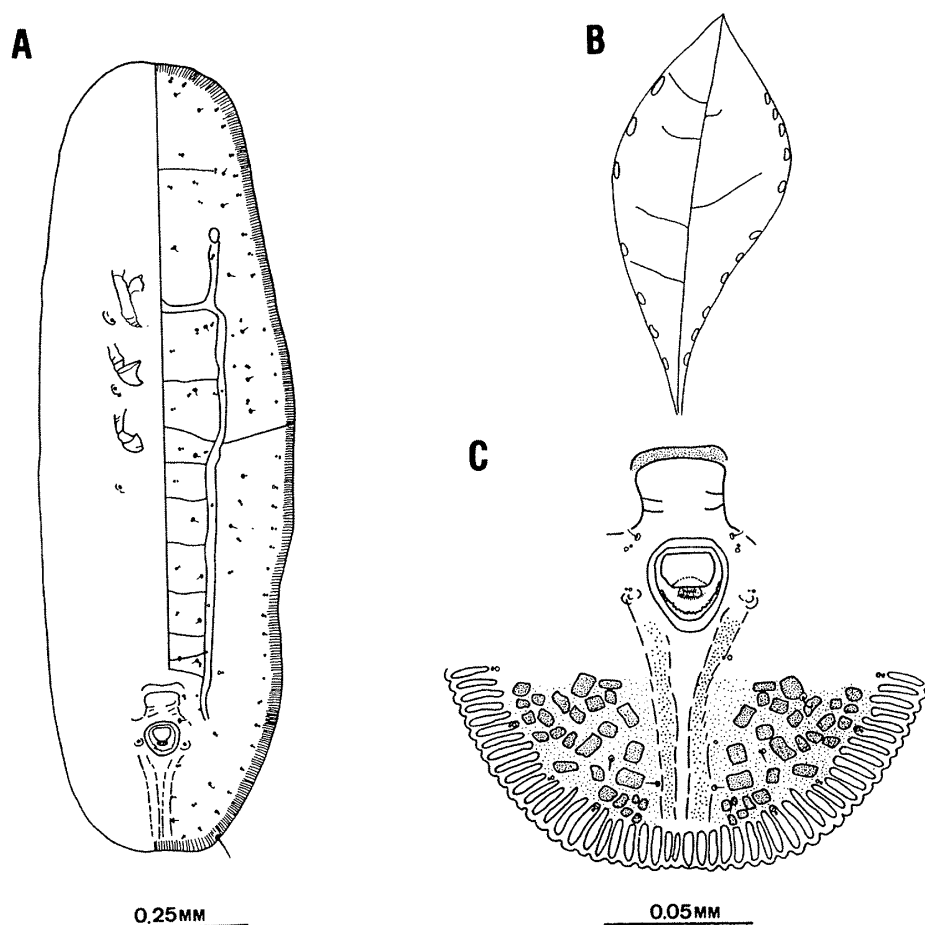
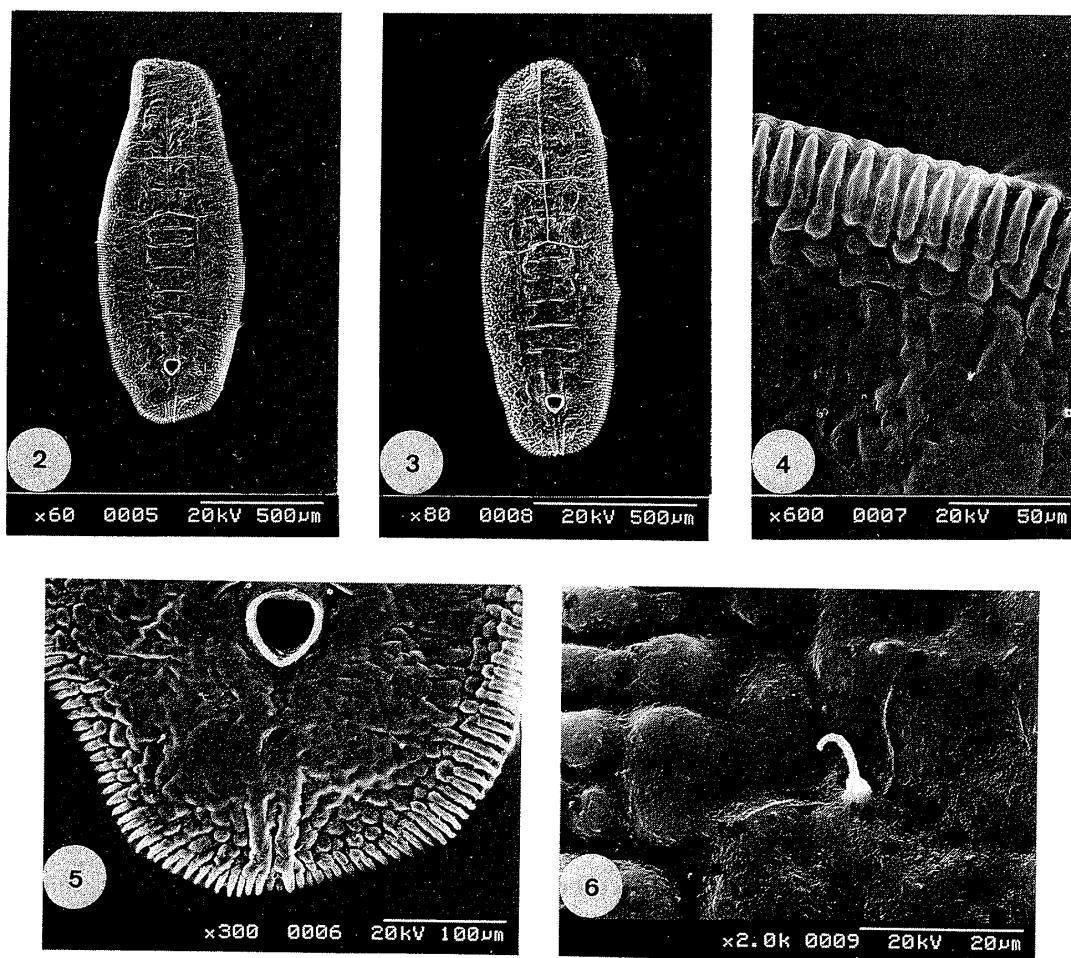


Fig. 1. *Aleuromarginatus shihmenensis* KO, n. sp. — A, Fourth instar; B, feeding site; C, posterior area.

located on prothoracic area. Dorsal disc sparsely scattered with double discal pores and simple pores, minute submarginal double discal pores arranged in a row near the apparent margin. Vasiform orifice cordate, 0.033 mm long and 0.027 mm wide, anterior and posterior margins straight, lateral margins almost rounded; inner edges of lateral margins with coarse teeth. Operculum roundly trapezoidal, 0.012 mm long and 0.018 mm wide, filling about a half of orifice. Lingula setose, knobbed, exposed but included. An apparent caudal furrow is formed by differentiation of some of the dorsal markings. Caudal ridges merely indicated, neither pores nor combs evident.

Venter. Antennae lateral to legs, long, extending slightly beyond base of fore leg, distally not roughened and apically pointed, apex reaching a half way between bases of fore and middle legs. Ventral abdominal setae absent. Prothoracic legs reduced. All spiracles present, subequal in size. Second and 8th abdominal setae absent. Thoracic tracheal and caudal folds absent.

Holotype pupal case. ♀, Taiwan, Shihmen on *Milletia reticulata* (Legum-



Figs. 2-6. *Aleuromarginatus shihmenensis* KO, n. sp. — 2, Fourth instar, ♀; 3, do., ♂; 4, do., marginal area; 5, do., posterior area; 6, do., subdorsal seta.

inosae), 23-I-1987 (C.C. Ko coll.) (NTU).

Paratype pupal case. Taiwan, Shihmen, 43 ♀, 35 ♂ pupal cases (on 13 microscope slides), same data as holotype (BMNH; HBL; NTU; TARI; NSMT).

Etymology. The specific name *shihmenensis* is derived from a geographic name, indicating the type locality Shihmen.

Comments. This species has been known from one colony, but in a dense population on the lower surface of mature leaves of *Millettia reticulata* (Leguminosae). Each individual has a marginal fringe of waxy filaments, apparently each one corresponding to a marginal tooth; the filaments are not dense and not very obvious to naked eyes. This species has a marked preference to feeding sites along side leaf border (Fig. 1 B) like *A. littoralis*, which is the usual explanation of asymmetry of outline. In some species like *A. dalbergiae*, *millettiae* and *tephrosiae*, the shape of the pupal case is influenced by the structure of leaf.

In the materials collected at Shihmen, there were no irregular emergence

holes of parasites. No ant attendance was observed. The host is a scandent shrub, distributed from Southern China to Taiwan, widely spread and common on rocks and trees.

This species displays all the characters of *Aleuromarginatus*, in particular the apparently double rows of marginal teeth and 21 pairs of minute dorsal setae in a characteristic pattern. It is, however, distinct from other described species in bearing a pair of submedian longitudinal furrows much like *A. dalbergiae*, but is different from it by pupal case more elongate, a pair of eye-spots, the pattern of subdorsal polygonal markings and the shape of meso- and metalegs.

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